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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

NG, EUNICE

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/509,085	<b>Applicant(s)</b> APPLEBY, STEPHEN C	
	<b>Examiner</b> Eunice Ng	<b>Art Unit</b> 2626	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 1-17.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                  | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 101*

1. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claim 15 is rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. Claim 15 recites a "computer program comprising code to execute on a computer..." Computer programs claimed as computer listings per se, i.e., the descriptions or expressions of the programs, are not physical "things." They are neither computer components nor statutory processes as they are not "acts" being performed. Such claimed computer programs do not define any structural and functional interrelationships between the computer program and other claimed elements of a computer which permit the computer program's functionality to be realized.

### *Information Disclosure Statement*

2. The listing of references in the specification is not a proper information disclosure statement. 37 CFR 1.98(b) requires a list of all patents, publications, or other information submitted for consideration by the Office, and MPEP § 609.04(a) states, "the list may not be incorporated into the specification but must be submitted in a separate paper." Therefore, unless the references have been cited by the examiner on form PTO-892, they have not been considered.

### *Specification*

3. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.
4. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

5. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

### *Claim Objections*

6. Claims 1-8, 10, 11, 13, 16 and 17 are objected to because of the following informalities:

Claim 1 recites "arranged to" in lines 6, 11, 12, 15 and 18 of the claim. Claims 2, 3, 5-8, 10 and 11 recite "arranged to" in the 2<sup>nd</sup> line of each claim. Claim 13 recites "arranged to" in line 16 of the claim. Claims 4 and 17 recite "can be converted" in the 2<sup>nd</sup> line of the each claim. Claim 16 recites "arranged to" in lines 4, 6, 8 and 10 of the claim. These all constitute intended use which itself has not been recited. Appropriate correction is required. For

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example, the examiner has interpreted “being arranged to apply” as --applies--; “can be converted into” as --is/are converted into--; and “is arranged to perform” as --performs--.

In claim 13, line 7, “characterized in that” should be --wherein--

In claim 16, line 2, “comprising,” should be --comprising:--

### *Claim Rejections - 35 USC § 102*

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 1-14, 16 and 17 are rejected under 35 U.S.C. 102(b) as being anticipated by Nii (US Patent No. 5,659,765).

Regarding claim 1, Nii teaches a computer natural language translation system, comprising: means for inputting source language text (Fig. 3, element 3, “input section”; Fig. 15A, element 141, “original sentence”); means for outputting target language text (Fig. 15D, element 147, “generated translated sentence”); and transfer means for generating said target language text from said source language text using stored translation data generated from examples of source and corresponding target language texts (Figure 15A, element 142; col. 26, ll. 20-39, “bilingual correspondence data”), the transfer means being arranged to use data defining a plurality of stored translation units each consisting of a small number of ordered words and/or variables in both the source and the target language (Fig. 15A, parts link information), and

development means for inputting new examples of source and corresponding target language texts (col. 6, ll. 16-22; translation examples can be learned), and adding new translation units based thereon (col. 11, ll. 60-65; recording the units of words or sentences), the development means being arranged:

to apply said stored translation data to a new example of source and corresponding target language texts (col. 11, line 65 – col. 12, line 55, Bilingual Correspondence Learning Section; particularly col. 12, ll. 30-40, which teaches unit linking applied to new source language text),

to generate for each at least one analysis comprising analysis data indicating the dependencies of words therein (see col. 13, ll. 24-36; and col. 13, line 63 – col. 14, line 8, parts of speech indicating matching semantics between translation units);

to calculate, for each one of a plurality of source words in the source language text, a measure of affinity between each word in the target language text and each such source language word (col. 15, ll. 10-36 and 48-53, teaches input Japanese sentence and character string 1, and bilingual correspondence database containing the corresponding translation units, as well as a similarity [affinity] calculation);

to pair source language words with target language words on the basis of the measures thus calculated (col. 8, ll. 55-58, teaches record testing section, learning testing, and translation subsystem; col. 13, line 50 – col. 15, line 7, comparison result for coincidence and match), and

to form new translation units comprising a said paired word and those words and/or variables in both the source and the target language analyses which depend upon it (col. 11,

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line 65 – col. 13, line 16, Bilingual Correspondence Learning Section; specifically, col. 12, line 57 – col. 13, line 16, new parts linking information).

Regarding claim 2, Nii teaches in which the development means is arranged to be capable of generating a plurality of said analyses in at least one of the source and target language, and to select one pair of analyses from which to form said new translation units (Fig. 15A – 15D, illustrates parts link information, including generated possible target texts, plurality of analyses; Fig. 15D, elements 145, 146 and 147; element 147 teaches translation produced by the analysis, and corresponding parts to the original sentence).

Regarding claim 3, Nii teaches in which the development means is arranged to jointly select the pair of analyses and the pairing of said source and target words (Fig. 15A – 15D, illustrates parts link information, including generated possible target texts, plurality of analyses; Fig. 15D, elements 145, 146 and 147, teach translation produced by the analysis, and corresponding parts to the original sentence).

Regarding claim 4, Nii teaches in which said analysis data represents, or can be converted into, a tree structure indicating the dependencies of words therein (Fig. 9, dependency graph, and Fig. 1, tree structure).

Regarding claim 5, Nii teaches in which the development means is arranged to perform said analyses using the stored translation units (Figure 15A, element 142; col. 26, ll. 20-39, “bilingual correspondence data”).

Regarding claim 6, Nii teaches in which the development means is arranged to calculate said measures of affinity using the stored translation units (col. 15, ll. 10-36 and 48-53, teaches input Japanese sentence and character string 1, and bilingual correspondence database [stored translation units] containing the corresponding translation units, as well as a similarity [affinity] calculation).

Regarding claim 7, Nii teaches in which the development means is arranged to calculate said measures of affinity using a lexicon database through which translations in said source and target languages can be identified (col. 15, ll. 10-36 and 48-53, teaches input Japanese sentence and character string 1, and bilingual correspondence database containing the corresponding translation units, as well as a similarity [affinity] calculation; see also Fig. 3, element 5, dictionary database).

Regarding claim 8, Nii teaches in which the development means is arranged to calculate said measures of affinity using semantic and/or syntactic analysis (col. 13, ll. 24-35 and col. 13, line 63 – col. 14, line 8, teach part of speech indicating matching semantics between translation units, wherein the translation is performed based on the analysis of these dependent semantic corresponding translation units).



Regarding claim 9, Nii teaches wherein the measure of affinity is a measure of the probability that each word in the target language text is a translation of each respective source language word (col. 15, ll. 10-36 and 48-53, teaches input Japanese sentence and character string 1, and bilingual correspondence database containing the corresponding translation units, as well as a similarity calculation [probability that each word in the target language text is a translation of each respective source language word]).

Regarding claim 10, Nii teaches in which the development means is arranged to perform said pairing in order of probability of correspondence from the highest probability, using said measures of probability (col. 15, ll. 10-53, teaches input Japanese sentence and character string 1, and bilingual correspondence database containing the corresponding translation units; as well as a similarity calculation: “the sentence numbers of a plurality of bilingual correspondences extracted from the bilingual correspondence database are arranged in the order of the similarities upon similarity calculation, and comparison is sequentially performed in the order of the decreasing similarity [probability of correspondence from the highest probability],” as discussed in col. 15, ll. 48-53).

Regarding claim 11, Nii teaches in which, after each said pairing, the development means is arranged to perform a word order analysis and to reject future pairings which would violate a word order criterion (see Fig. 9; and col. 13, ll. 51-54, teaches the “learning testing section performs management processing such as...deletion...and retrieval of parts link information and the like recorded on the bilingual correspondence database.” For example, in

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col. 14, line 66 – col. 15, line 6, “the parts...in the parts link information do not coincide with any parts of the original sentence [would violate a word order criterion]...In this case, the parts having <\*\*\*\*> attached thereto are not required and hence deleted...resultant sentence is output as a translation result”).

Regarding claim 12, Nii teaches a method of obtaining new translation units for a computer translation system, from examples of source and corresponding target language texts, comprising: analysing the texts to obtain dependency relationships between language units thereof (see col. 13, ll. 24-36; and col. 13, line 63 – col. 14, line 8, parts of speech indicating matching semantics between translation units);

matching words of one text against all those of the other, to generate scores (col. 15, ll. 10-36 and 48-53, teaches input Japanese sentence and character string 1, and bilingual correspondence database containing the corresponding translation units, as well as a similarity calculation);

pairing words of the respective texts using said scores (col. 8, ll. 55-58, teaches record testing section, learning testing, and translation subsystem; col. 13, line 50 – col. 15, line 7, comparison result for coincidence and match); and

providing new translation units using the paired words, and language units in each of the languages derived from the analyses (col. 11, line 65 – col. 13, line 16, Bilingual Correspondence Learning Section; specifically, col. 12, line 57 – col. 13, line 16, new parts linking information).

Regarding claim 13, Nii teaches a computer natural language translation system, comprising: means for inputting source language text (Fig. 3, element 3, “input section”; Fig. 15A, element 141, “original sentence”); means for outputting target language text (Fig. 15D, element 147, “generated translated sentence”); transfer means for generating said target language text from said source language text using stored translation data generated from examples of source and corresponding target language texts (Figure 15A, element 142, “bilingual correspondence data”; col. 26, ll. 20-39), [wherein] said stored translation data comprises a plurality of translation components (Fig. 15A, parts link information), each comprising:

surface data representative of the order of occurrence of language units in said component (see Fig. 9, col. 13, ll. 24-36, and col. 13, line 63 – col. 14, line 8);

dependency data related to the semantic relationship between language units in said component (col. 13, ll. 24-36; and col. 13, line 63 – col. 14, line 8, parts of speech indicating matching semantics between translation units); and

the dependency data of language components of said source language being aligned with corresponding dependency data of language components of said target language (Fig. 9; col. 8, ll. 55-58, teaches record testing section, learning testing, and translation subsystem; col. 13, line 50 – col. 15, line 7, comparison result for coincidence and match),

and in that said transfer means is arranged to use said surface data of said source language in analysing the source language text, and said surface data of said target language in generating said target language text, and said dependency data in transforming the analysis of said source text into an analysis for said target language (see Figs. 9-15D; col. 13, ll. 24-36,

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and col. 13, line 63 – col. 14, line 8; col. 8, ll. 55-58, teaches record testing section, learning testing, and translation subsystem; col. 13, line 50 – col. 15, line 7, comparison result for coincidence and match).

Regarding claim 14, Nii teaches a computer language translation development system, for developing data for use in translation, comprising: means for allowing corresponding source and target example texts to be linked into source and target language dependency graphs (Fig. 9, dependency graph); means for allowing corresponding translatable nodes of said source and target language dependency graphs representing translatable parts of the source and target texts to be aligned (Fig. 9, dependency graph; and as discussed in the rejection of claim 1); and means for automatically generating, from said source and target language dependency graphs, respective associated surface representative graph having a tree structure (Fig. 9, dependency graph, and as in Fig. 1, tree structure).

Regarding claim 16, Nii teaches an apparatus for inferring new translation units which will allow a given source text to translate as a given target text comprising: a database of translation units (see Fig. 3, element 56, bilingual correspondence database);

means arranged to analyse both the source text and the target text into one or more alternative representations using these units (Fig. 15A – 15D, illustrates parts link information, including generated possible target texts);

means arranged to indicate and score lexical alignments between the source and target texts (col. 15, ll. 10-53, teaches input Japanese sentence and character string 1, and bilingual

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correspondence database containing the corresponding translation units, as well as a similarity calculation);

means arranged to select one of the alternative source analyses and one of the alternative target analyses based on the scored alignments (for example, Fig. 15D; element 147 teaches translation produced by the analysis, and corresponding parts to the original sentence); and

means arranged to infer one or more translation units based on the selected source analysis, the target analysis and the alignment (Fig. 15A – 15D; element 147 teaches translation produced by the analysis, and corresponding parts to the original sentence).

Regarding claim 17, Nii teaches wherein said alternative representations are tree representations or representations that can be converted into tree representations (Fig. 1, tree representation).

### *Conclusion*

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

Franz et al. (US 6,161,083) teaches example-based translation method and system which calculates word similarity degrees, a priori probability, and transformation probability to determine the best example for translation.

Ando et al. (US 6,523,000) teaches translation supporting apparatus and method and computer-readable recording medium, wherein a translation example useful for the translation task is searched out from within a translation example database.

Menezes et al. (US 2003/0023422) teaches translating a textual input in a first language to a textual output in a second language; textual output is generated based on a selected transfer logical form.

Menezes et al. (US 7,200,550) teaches projecting dependencies to generate target language dependency structure.

Ozawa et al. (US 7,110,939) teaches a process of creating a translation-example dictionary for an Example-based Machine Translation.

Sakaki et al. (US 4,599,691) teaches tree transformation system in machine translation system.

Moore (US 7,191,115) teaches a statistical method and apparatus for learning translation relationships among words.

Nakajima et al. (US 5,181,163) teaches a method and apparatus for generating and/or updating co-occurrence relation dictionary.


10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eunice Ng whose telephone number is 571-272-2854. The examiner can normally be reached on Monday through Friday, 8:30 a.m. - 5:00 p.m.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Hudspeth can be reached on 571-272-7843. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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